

What is claimed is:

1. A method for providing a plurality of mouse colony management services to customers, comprising:
 - (a) receiving an order from a customer that indicates the service desired;
 - (b) providing the plurality of services to the customer by utilizing a core process and optionally, a service-specific process, whereby the core process is shared by the plurality of services.
2. The method of claim 1, wherein the core process is producing embryos using an assisted reproductive technology.
3. The method of claim 2, wherein the assisted reproductive technology is producing embryos by in vitro fertilization, comprising:
 - (a) superovulating a donor female mouse;
 - (b) obtaining oocytes from the superovulating donor female mouse;
 - (c) obtaining sperm from a donor male mouse having a desired trait;
 - (d) fertilizing in vitro oocytes obtained in (b) with sperm obtained in (c), thereby producing fertilized oocytes;
 - (e) culturing fertilized oocytes produced in (d) in culture media under conditions appropriate for development of fertilized oocytes into embryos, whereby embryos are produced.
4. The method of claim 3, wherein the plurality of mouse colony management services is selected from: generation and cryopreservation of mouse embryos; rapid expansion of a mouse colony; rapid production of synchronized progeny, site-to-site transfer of a mouse strain; pathogen-free rederivation of a mouse strain; strain rescue; mouse embryos supply; supply of live mice recovered from cryopreserved embryos; rapid production of congenic strains with desired genetic trait(s) and rapid production of congenic strains with desired phenotypes.

5. The method of claim 4, wherein the donor male or donor female mouse having a desired trait is provided by a customer or a third party.
6. The method of claim 4, wherein both the donor male mouse and the donor female mouse are provided by a customer or a third party.
7. The method of any one of claims 3-6, wherein the donor female mouse has a pre-determined genetic background.
8. The method of claim 7, wherein the embryos are harvested at 2-cell stage.
9. The method of claim 8, wherein pricing of the plurality of mouse colony management services is based on the genetic background of the donor female mouse.
10. The method of claim 9, wherein the mouse colony management service is rapid expansion of a mouse colony, and the service-specific process comprises:
 - (a) transferring an appropriate number of embryos produced by the core process into an appropriate number of pseudopregnant female mice;
 - (b) shipping the resulting pregnant mice to customers.
11. The method of claim 9, wherein the mouse colony management service is rapid expansion of a mouse colony, and the service-specific process comprises:
 - (a) transferring appropriate number of embryos produced by the core process into an appropriate number of pseudopregnant female mice;
 - (b) maintaining the resulting pregnant mice under conditions suitable for production of live progeny, thereby producing live progeny.
 - (c) shipping the live progeny to a customer.
12. The method of claim 9, wherein the mouse colony management service is generation and provision of mouse embryos with a desired trait, and the service-specific process comprises: packing and shipping to customer the embryos produced by the core process.

13. The method of claim 9, wherein the mouse colony management service is generation and cryopreservation of mouse embryo with desired trait, and the service-specific process comprises:

- (a) cryopreserving embryos produced by the core process;
- (b) storing the cryopreserved embryos, thereby producing a cryopreserved embryo stock.

14. The method of claim 9, wherein the mouse colony management service is generation and cryopreservation of mouse embryos and provision of cryopreserved embryos, and the service-specific process comprises:

- (a) cryopreserving the embryos produced by the core process;
- (b) storing the cryopreserved embryos, thereby producing a cryopreserved embryo stock;
- (c) in response to a customer order, supplying the customer with the desired cryopreserved embryos from the cryopreserved embryo stock of claim 13.

15. The method of claim 9, wherein the mouse colony management service is generation and cryopreservation of mouse embryos and provision of live mice recovered from cryopreserved embryos, and the service-specific process comprises:

- (a) cryopreserving the embryos produced by the core process;
- (b) storing the cryopreserved embryos, thereby producing a cryopreserved embryo stock;
- (c) in response to a customer order, thawing cryopreserved embryos from the cryopreserved embryo stock of claim 13, thereby producing thawed embryos;
- (d) transferring thawed embryos into pseudopregnant female mice;
- (e) maintaining resulting pregnant mice under conditions suitable for production of live progeny;
- (f) supplying live progeny to the customer.

16. The method of claim 9, wherein the mouse colony management service is rapid production of desired number of synchronized progeny, and the service-specific process comprises:

- (a) simultaneously transferring an appropriate number of embryos produced by the core process into appropriate number of pseudopregnant female mice;
- (b) maintaining the resulting pregnant mice under conditions suitable for production of live progeny, thereby producing an appropriate number of live progeny; and
- (c) shipping live progeny to the customer.

17. The method of claim 9, wherein the mouse colony management service is rapid production of congenic strains with desired genetic trait(s), and the service-specific process comprises:

- (a) implanting embryos produced by the core process into at least one pseudopregnant recipient mouse;
- (b) maintaining the resulting pregnant mice under conditions suitable for production of live progeny;
- (c) among live progeny produced, selecting progeny with both the desired allele of interest and the highest percentage of target background; and
- (d) repeating the core process and the service-specific process as necessary to produce a congenic mouse with the allele of interest in a desired target background.

18. The method of claim 9, wherein the mouse colony management service is rapid production of congenic strains with desired phenotype(s), and the service-specific process comprises:

- (a) implanting embryos produced by the core process into at least one pseudopregnant recipient mouse;
- (b) maintaining the resulting pregnant mice under conditions suitable for production of live progeny;

(c) among live progeny produced, selecting progeny with both the desired phenotype and the highest percentage of target background; and

(d) repeating the core process and the service-specific process as necessary to produce a congenic mouse with desired phenotype(s) in a desired target background.

19. A method for providing a plurality of mouse colony management services to customers, comprising:

- (a) receiving an order from a customer that indicates the service desired; and
- (b) providing the plurality of services to the customer by utilizing an assisted reproductive technology.

20. The method of claim 19, wherein the assisted reproductive technology is in vitro fertilization, comprising:

- (a) superovulating a donor female mouse;
- (b) obtaining oocytes from the superovulating donor female mouse;
- (c) obtaining sperm from a donor male mouse having a desired trait;
- (d) fertilizing in vitro oocytes obtained in (b) with sperm obtained in (c), thereby producing fertilized oocytes;
- (e) culturing fertilized oocytes produced in (d) in culture media under conditions appropriate for development of fertilized oocytes into embryos, whereby embryos are produced.

21. The method of claim 20, wherein the plurality of mouse colony management services is selected from: generation and cryopreservation of mouse embryos; rapid expansion of a mouse colony; rapid production of synchronized progeny, site-to-site transfer of a mouse strain; pathogen-free rederivation of a mouse strain; strain rescue; mouse embryos supply; supply of live mice recovered from cryopreserved embryos; rapid production of congenic strains with desired genetic trait(s) and rapid production of congenic strains with desired phenotypes.

22. The method of claim 21, wherein the donor male or donor female mouse having a desired trait is provided by a customer or a third party.

23. The method of claim 21, wherein both the donor male mouse and the donor female mouse are provided by a customer or a third party.

24. The method of any one of claims 19-23, wherein the donor female mouse has a pre-determined genetic background.

25. The method of claim 24, wherein the embryos are harvested at 2-cell stage.

26. The method of claim 25, wherein pricing of the plurality of mouse colony management services is based on the genetic background of the donor female mouse.

27. A system for providing a plurality of mouse colony management services to customers, said system comprising at least three of the following modules:

- (a) a customer service module;
- (b) a scheduling and data management module;
- (c) a live animal module;
- (d) a surgery and in vitro fertilization module;
- (e) a cryopreservation module;
- (f) a packing and shipping module; and
- (g) an education and training module.

wherein the plurality of mouse management services are provided to customers by utilizing a combination of at least four of these modules.

28. The system of claim 27 wherein the system is computer implemented.

29. The system of claim 28 wherein the live animal module comprises:

- (a) a barrier space for incoming animals;
- (b) superovulated females;

- (c) pseudopregnant females; and
 - (d) a barrier space for breeding and shipping.
30. A kit for distributing cryopreserved embryos, comprising:
- (a) at least one cryopreserved embryo;
 - (b) a washing reagent for washing the cryoprotective solution off the embryo;
- and
- (c) instructions for recovery of the cryopreserved embryo.
31. The kit of claim 30, wherein the kit further comprises a cryopreserved test embryo.
32. The kit of claim 31, wherein the instructions for recovery of the cryopreserved embryo is included in the kit in a manner such that the instructions must be removed to provide access to the embryo.